

CLAIMS

1. In an automated system for treatment of a plurality of chemical or biological samples, a dispenser for dispensing a treatment solution into a plurality of wells in a multi-well plate, wherein the multi-well plate is disposed within a chamber, the dispenser comprising:

a housing attached to the chamber;

a dispensing head extending from the housing into the chamber, the dispensing head having a plurality of dispensing tips extending therefrom and arrayed in a pattern corresponding to an array of wells in the multi-well plate;

a plurality of reservoir wells for retaining a measured amount of treatment solution;

a plurality of tubes extending through the housing and the dispensing head, each tube having a first end and a second end, one tube corresponding to each reservoir of the plurality of reservoirs, the first end being disposed adjacent the reservoir well and the second end connected to a corresponding tip of the plurality of tips; and

a pressure source for forcing treatment solution from the reservoir wells through the tubes and out of the corresponding tip into a corresponding well of the multi-well plates.

2. The automated system of Claim 1, wherein the samples are synthesized chemical compounds and the treatment solution is trifluoroacetic acid (TFA).

3. The automated system of Claim 1, wherein the samples are synthesized chemical compounds and the treatment solution is dichloromethane (DCM).

4. The automated system of Claim 1, wherein the samples are
2 biological samples and the treatment solution is selected from the group
consisting of a detergent, buffering solution, deionized water, and eluting
4 reagent.

5. The automated system of Claim 1, further comprising means for
2 raising and lowering the dispensing head to fill the wells of the multi-well
plate.

6. The automated system of Claim 5, further comprising an
2 alignment device for aligning the wells of the multi-well plate with the
plurality of tips.

7. The automated system of Claim 6, further comprising an
2 alignment sensor for detecting misalignment.

8. The automated system of Claim 1, wherein the housing forms
2 a vacuum-tight seal with the chamber.

9. The automated system of Claim 1, wherein the plurality of
2 reservoir wells is disposed within a fill container and the housing includes a
reservoir chamber for retaining the fill container, and wherein each reservoir
4 well is surrounded by a plurality of bores extending through the fill container.

10. The automated system of Claim 9, wherein the fill container
2 comprises a TEFLON® block.

11. The automated system of Claim 9, wherein the reservoir
2 chamber has tubing connected thereto for supplying treatment solution from
a source and for draining excess treatment solution back to the source.

12. The automated system of Claim 1, wherein the pressure source
2 comprises a nitrogen source and tubing for connecting the nitrogen source
to the housing.

13. An automated method for dispensing solution to a plurality of
2 sample wells in a multi-well plate, the method comprising:

(a) placing a fill container within a reservoir chamber, the fill container
4 having a plurality of reservoir wells formed therein, each reservoir well having
a pre-determined volume corresponding to an amount of solution to be
6 dispensed to each sample well;

(b) disposing a plurality of tubes with each tube having a proximal end
8 adjacent one reservoir well and a distal end connected to a tip above a
corresponding sample well;

(c) filling the reservoir chamber with the solution from a solution
10 source to a level above a top of the fill container;

(d) draining excess solution through a plurality of bores formed in the
12 fill container and out of the reservoir chamber; and

(e) introducing a gas into the reservoir chamber to force solution from
14 the reservoir well into the corresponding tube and to the corresponding
16 sample well.

14. The method of Claim 13, further comprising aligning the tips
2 with the sample wells in multi-well plate.